

INTERLOCKING PARTITION AND PANEL SYSTEM

This application claims priority from provisional patent application 60/456,692 filed March 21, 2003.

FIELD OF THE INVENTION

[01] The present invention relates generally to the construction field. More specifically, the present invention relates to the fields of customized, remodeled, and partitioned indoor and outdoor residential, commercial, and recreational spaces.

BACKGROUND OF THE INVENTION

[02] Living, working, and recreational spaces frequently must be divided into partitions. Restaurants are required by municipal ordinance to provide designated non-smoking areas. Population growth and constrained budgets force schools to divide classrooms, libraries, or laboratories. Museums may need temporary panels for displaying loaned art or permanent dividers for displaying donated art. Businesses may need to quickly partition spaces to accommodate unplanned workforce expansion, new product lines, or the addition of employee daycare facilities. Newly implemented security concerns have forced airports to quickly add passenger and baggage screening area partitions, and could present a need for emergency containment of airborne contaminants and toxins.

SUMMARY OF THE INVENTION

[03] There are many needs for temporary, semi-permanent, and permanent partitions and walls for which typical construction methods are too time-consuming and costly. There is a need for economical, quickly constructed dividers, panels, barriers, sound baffles, decorations, theater sets, animal corrals, children play areas, or other divisions of space. The present invention enhances the construction field with a system of pre-formed interlocking components that can be cut to desired lengths and assembled on site into frames that can be anchored to any solid surface with conventional fasteners and adhesives. The frames can receive and hold panels of any solid material including wood, composite, metal, granite, glass, plastic, sheetrock, and cloth. A plurality of frames can be interlocked with each other in parallel, perpendicular, or other angular orientations to form customized partitions and walls. The present invention permits on-site construction of customized partitions and walls in a timely and cost-effective manner.

BRIEF DESCRIPTION OF THE DRAWINGS

[04] FIG. 1 is an end view of one embodiment of a base member 100 of the present invention.

[05] FIG. 2 is an end view of one embodiment of one of the members 200 of the present invention capable of capturing a member such as panel member 1000 and mating with a member such as member 100.

[06] FIG. 2a is an isometric view of one embodiment of one of the members 200 of the present invention capable of capturing a member such as panel member 1000 and mating with a member such as member 100.

[07] FIG. 3 is an end view of one embodiment of one of the members 300 of the present invention capable of mating with a member such as member 200.

[08] FIG. 4 is an end view of one embodiment of one of the members 400 of the present invention capable of mating with one or two members such as member 200.

[09] FIG. 5 is an end view of one embodiment of one of the members 500 of the present invention capable of mating with one or two members such as member 200.

[10] FIG. 6 is an end view of one embodiment of one of the members 600 of the present invention capable of mating with one or two members such as member 200.

[11] FIG. 7 is an end view of one embodiment of one of the members 700 of the present invention capable of mating with as many as four members such as member 200.

[12] FIG. 8 is an end view of one embodiment of a present invention frame assembly comprising a base member 100, two members 200, a member 400, and a panel member 1000.

DETAILED DESCRIPTION OF THE PREFERRED EMBODIMENT

[13] FIG. 1 shows one embodiment of one of the members of the present invention. It is a two-part base member 100. Member 1 can be attached with conventional fasteners or adhesives to a surface 99 upon or against which a partition or wall of the present invention is to be attached.

[14] FIG. 2 shows one embodiment of one of the members of the present invention. When the male dovetail feature, as commonly understood in the carpentry and building trades, of member 2 is received and seated in the female dovetail feature of member 100, created by the proximity of members 4 and 1, and member 4 of member 100 is pushed against member 1 of member 100 and attached to mounting surface 99, to member 1, or both, member 2 is captured and secured. A panel

1000 can be secured in member 200 by capturing it between member 2 and member 5 and securing member 5 to member 2 with any number of readily available fasteners, including nails, screws, clamps, or adhesives.

[15] FIG. 2a illustrates a panel member 1000 captured in one embodiment of member 200. Member 5 is pushed against members 2 and 1000, and secured with fasteners or adhesive (not shown) so that panel member 1000 is securely captured.

[16] FIG. 3 shows one embodiment of one of the members of the present invention. The female dovetail feature of member 7 can receive any member having a matching male dovetail feature. For example, the female dovetail feature of member 7 can receive the male dovetail feature of member 2, or a similar member with a male dovetail feature, thus creating a member comprised of members 200 and 300. A panel 1000 can be secured in member 300 by capturing it between member 7 and member 6 and securing member 6 to member 7 with any number of readily available fasteners, such as screws, or adhesives. Thus, the composite member consisting of members 200 and 300 can act as a joining device between two panels 1000.

[17] FIG. 4 shows one embodiment of one of the members of the present invention. Member 400 provides for extension of partitions and walls. It provides two female dovetail features 40 and 41 in which members with male dovetail features, such as member 200, or a similar member with a male dovetail feature, can be received. The two member 400 female dovetail features 40 and 41 illustrated in FIG. 4 are situated in member 400 at equal angles from the member 400 axis of symmetry 42. If the equal orientation angles of the female dovetail members are, for example, 45 degrees, member 400, assembled with a member 200, or a similar member with a male dovetail

feature, received in both of its female dovetail members 40 and 41, provides a joining device between two perpendicular panels 1000. Member 400 could be constructed of two mirror-image blocks that are attached with commonly understood fasteners or adhesive so that they share the common surface in the symmetry plane 42.

[18] In another embodiment of the FIG. 4 member 400, the female dovetail features 40 and 41 can be situated at dissimilar angles from the axis of symmetry 42. Such an embodiment would provide a joining device between two panels 1000 that describe an angle that could range from a small acute angle to 180 degrees.

[19] FIG. 5 shows one embodiment of one of the members of the present invention. Member 500 provides two opposed female dovetail features 50 and 51 in which members with male dovetail features, such as member 200, or similar members having a male dovetail feature, can be received. The two opposed member 500 female dovetail features 50 and 51 illustrated in FIG. 5 are mirror images. When a member 200, or a similar member with a male dovetail feature, is received in both of the member 500 female dovetail features 50 and 51, member 500 becomes a device for joining two coplanar panels 1000.

[20] In another embodiment of member 500, the female dovetail features 50 and 51 on opposite sides of member 500 can be parallel but offset so as to be asymmetrical. When a member 200, or a similar member with a male dovetail feature, is received in both of the alternate embodiment member 500 female dovetail features, member 500 becomes a device for joining two parallel but noncoplanar panels 1000.

[21] In another embodiment of member 500, either side of member 500 can have more than one female dovetail feature. When a member 200, or a similar member with a male dovetail feature, is received in, for example, one female dovetail feature on one side of member 500 and two female dovetail features on the opposite side of member 500, member 500 becomes a device for joining one panel 1000 to two panels 1000 that are parallel but not necessarily coplanar.

[22] In another embodiment of member 500, one side of member 500 can be constructed without a dovetail feature. The resultant flat surface on one side of the alternate embodiment member 500 can function as a cap to provide a decorative finish or functional appendage to the edge of a partition or wall that emanates from the side of member 500, or a similar member, having a dovetail feature. Such decorative or functional features can include, for example, millwork, a capital, light fixture, sprinkler head, mister, or electrical outlet.

[23] FIG. 6 shows an embodiment of one of the members of the present invention. Member 600 is one embodiment of a member that provides, in conjunction with two members 200, or similar members with male dovetail features, a joining device for two perpendicular panels 1000. Member 600 also provides a prominent surface 18 that can be manufactured in special-order decorative or functional profiles, finishes, and colors. Member 600 can thus function as a decorative partition or wall corner. Member 600 could be constructed of two mirror-image blocks that are attached with commonly understood fasteners or adhesive so that they share the common surface in the symmetry plane 62.

[24] In another embodiment of member 600, one side of member 600 can have more than one female dovetail feature. When a member 200, or a similar member with a male dovetail feature, is

received in, for example, one female dovetail feature on one side of member 600 and two female dovetail features on an adjacent side of member 600, member 600 becomes a device for joining one panel 1000 perpendicularly to two parallel but noncoplanar panels 1000.

[25] FIG. 7 shows one embodiment of one of the members of the present invention. Member 700 is comprised of two or more members, such as members 70 and 71, that are joined by the receiving of a male dovetail feature on one member by a female dovetail feature on the other member. With only members 70 and 71, member 700 can function as a vertical center post providing for two, three, or four partitions or walls, or as a horizontal center post providing for both vertical and horizontal partitioning. A member 700, in conjunction with several members 200, or similar members having male dovetail features, can thus provide a joining device for any number of parallel and perpendicular panels 1000. The eight orthogonal surfaces 21 provide member 700 with exposed surfaces that can be stained, painted, or otherwise made decorative or functional.

[26] FIG. 8 shows one embodiment of one of the members of the present invention. Member 800 is one embodiment of an assembly of several of the present invention's members. A member 100 and a member 400 combine with two members 200 to receive and hold a panel 1000. In the dovetail slot of member 400 illustrated as being empty in FIG. 8, another member 200 could be received. In that additional member 200 could be received another panel 1000 for a continuation of the panel assembly in a direction 45 degrees from the illustrated panel 1000. In the FIG. 8 embodiment of member 800, members 5 are located on opposite sides of panel 1000. Another embodiment of member 800 could be assembled with members 2 oriented so that members 5 are located on the same side of the illustrated member 1000.

[27] The members of the present invention can be manufactured in sizes customized to job specifications. A typical partition might require members 100 to have a height of one and three-quarters inches and the narrow opening at the top of the member 100 dovetail feature to have a width sufficient to accommodate a panel 1000 with a width of one inch.

[28] Individual members of the present invention can be any solid material suitable for construction such as metal, plastic, wood, foam, or composite, and can be manufactured in any manner suitable for industry such as machining, extrusion, molding, laser-cutting, or sintering. Surfaces 10, 11, 12, 13, 14, 15, 16, 17, 18, 19, 20, and 21 can be manufactured in special-order decorative or functional profiles, finishes, and colors, but any of the invention's exposed surfaces can be so manufactured. The disclosed embodiment utilizes dovetails to provide the interlocks, but other mortise and tenon designs could be used. A mortise is commonly understood in the building trades to be a hole, slot, groove, square opening, or other cavity in or on one member for receiving a projection on another member for the purpose of joining the two members.

[29] While the present invention has been described in terms of a single preferred embodiment with a few variations, it will be apparent to those skilled in the art that form and detail modifications may be made to that embodiment without departing from the spirit or scope of the invention. For example, any member described as part of the preferred embodiment could have male, instead of female, dovetail features, or vice versa.